

## **A Kepler Galaxy Survey - Campaign 6 and 7: Expanding the Temporal Baseline for Extragalactic Systems**

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We propose to monitor ~200 / 100 bright galaxies within the K2-C6 & K2-C7 fields of view extending the Kepler Galaxy Legacy Survey, which originated during the prime mission and also collected data during the early campaigns of the K2 mission. This survey is sensitive to both quasi-continuous variability, originating in low-level flickering produced by embedded active galactic nuclei, and random episodic events, particularly supernovae. Our primary objectives are: (a) to quantify the presence of optical photometric variability within galactic systems using Kepler's unique blend of high precision and continuous monitoring, (b) define the existence and amplitude of AGN signals in galaxy cores, (c) provide a direct measure of supernovae rates across a range of galaxy types, and, (d) quantify the initial brightening of supernova as the explosion rises to peak luminosity. The proposed observations include a larger range of morphological types than in the prime mission and also benefits from a better informed ancillary dataset for these galaxies, especially redshifts. In this cycle we will focus on optically blue galaxies with modest star formation rates, to maximize the potential signal from Type II supernova. Only systems with known redshifts are included, to provide luminosity information for detected supernova and to scale variability according to stellar mass. Continued monitoring of galactic systems with K2, while limited in long-term temporal coverage compared to the prime mission, will continue to advance our overall understanding of a variety of physical phenomenon, expanding the fundamental temporal baseline for extragalactic investigations with Kepler.